10/511096 DT04 Rec'd PCT/PT0 1 4 OCT 2004

36

SEQUENCE LISTING

<110> Evotec NeuroSciences GmbH											
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515

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Thr Lys Arg Gln Met His Glu Thr Leu Glu Met Lys Glu Glu Glu Ile 375 Ala Gln Leu Arg Ser Arg Ile Lys Gln Met Thr Thr Gln Gly Glu Glu 395 Leu Arg Glu Gln Lys Glu Lys Ser Glu Arg Ala Ala Phe Glu Glu Leu Glu Lys Ala Leu Ser Thr Ala Gln Lys Thr Glu Glu Ala Arg Arg Lys Leu Lys Ala Glu Met Asp Glu Gln Ile Lys Thr Ile Glu Lys Thr Ser Glu Glu Glu Arg Ile Ser Leu Gln Gln Glu Leu Ser Arg Val Lys Gln Glu Val Val Asp Val Met Lys Lys Ser Ser Glu Glu Gln Ile Ala Lys Leu Gln Lys Leu His Glu Lys Glu Leu Ala Arg Lys Glu Gln Glu Leu Thr Lys Lys Leu Gln Thr Arg Glu Arg Glu Phe Gln Glu Gln Met Lys 505 Val Ala Leu Glu Lys Ser Gln Ser Glu Tyr Leu Lys Ile Ser Gln Glu 520 Lys Glu Gln Glu Ser Leu Ala Leu Glu Glu Leu Glu Leu Gln Lys 535 Lys Ala Ile Leu Thr Glu Ser Glu Asn Lys Leu Arg Asp Leu Gln Gln 555 Glu Ala Glu Thr Tyr Arg Thr Arg Ile Leu Glu Leu Glu Ser Ser Leu 565 Glu Lys Ser Leu Gln Glu Asn Lys Asn Gln Ser Lys Asp Leu Ala Val 585 His Leu Glu Ala Glu Lys Asn Lys His Asn Lys Glu İle Thr Val Met Val Glu Lys His Lys Thr Glu Leu Glu Ser Leu Lys His Gln Gln Asp 615 Ala Leu Trp Thr Glu Lys Leu Gln Val Leu Lys Gln Gln Tyr Gln Thr Glu Met Glu Lys Leu Arg Glu Lys Cys Glu Gln Glu Lys Glu Thr Leu Leu Lys Asp Lys Glu Ile Ile Phe Gln Ala His Ile Glu Glu Met Asn 665 Glu Lys Thr Leu Glu Lys Leu Asp Val Lys Gln Thr Glu Leu Glu Ser Leu Ser Ser Glu Leu Ser Glu Val Leu Lys Ala Arg His Lys Leu Glu 695 . Glu Glu Leu Ser Val Leu Lys Asp Gln Thr Asp Lys Met Lys Gln Glu 710

Leu Glu Ala Lys Met Asp Glu Gln Lys Asn His His Gln Gln Gln Val Asp Ser Ile Ile Lys Glu His Glu Val Ser Ile Gln Arg Thr Glu Lys Ala Leu Lys Asp Gln Ile Asn Gln Leu Glu Leu Leu Lys Glu Arg Asp Lys His Leu Lys Glu His Gln Ala His Val Glu Asn Leu Glu Ala Asp Ile Lys Arg Ser Glu Gly Glu Leu Gln Gln Ala Ser Ala Lys Leu Asp Val Phe Gln Ser Tyr Gln Ser Ala Thr His Glu Gln Thr Lys Ala Tyr Glu Glu Gln Leu Ala Gln Leu Gln Gln Lys Leu Leu Asp Leu Glu Thr Glu Arg Ile Leu Leu Thr Lys Gln Val Ala Glu Val Glu Ala Gln 840 Lys Lys Asp Val Cys Thr Glu Leu Asp Ala His Lys Ile Gln Val Gln Asp Leu Met Gln Gln Leu Glu Lys Gln Asn Ser Glu Met Glu Gln Lys 875 870 Val Lys Ser Leu Thr Gln Val Tyr Glu Ser Lys Leu Glu Asp Gly Asn 885 Lys Glu Gln Glu Gln Thr Lys Gln Ile Leu Val Glu Lys Glu Asn Met Ile Leu Gln Met Arg Glu Gly Gln Lys Lys Glu Ile Glu Ile Leu Thr Gln Lys Leu Ser Ala Lys Glu Asp Ser Ile His Ile Leu Asn Glu Glu 935 Tyr Glu Thr Lys Phe Lys Asn Gln Glu Lys Lys Met Glu Lys Val Lys Gln Lys Ala Lys Glu Met Gln Glu Thr Leu Lys Lys Lys Leu Leu Asp 965 Gln Glu Ala Lys Leu Lys Lys Glu Leu Glu Asn Thr Ala Leu Glu Leu 985 Ser Gln Lys Glu Lys Gln Phe Asn Ala Lys Met Leu Glu Met Ala Gln 1005 1000 Ala Asn Ser Ala Gly Ile Ser Asp Ala Val Ser Arg Leu Glu Thr Asn 1015. Gln Lys Glu Gln Ile Glu Ser Leu Thr Glu Val His Arg Arg Glu Leu 1030 1035 Asn Asp Val Ile Ser Ile Trp Glu Lys Lys Leu Asn Gln Gln Ala Glu Glu Leu Gln Glu Ile His Glu Ile Gln Leu Gln Glu Lys Glu Gln Glu 1065 Val Ala Glu Leu Lys Gln Lys Ile Leu Leu Phe Gly Cys Glu Lys Glu

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His Val Asn Ser Leu Ala Gln Asp Glu Thr Lys Leu Lys Ala His Leu 1125 1130 1135

Glu Lys Leu Glu Val Asp Leu Asn Lys Ser Leu Lys Glu Asn Thr Phe 1140 1145 1150

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Arg Lys Val Ser Glu Leu Thr Ser Lys Leu Lys Thr Thr Asp Glu Glu 1170 1175 1180

Phe Gln Ser Leu Lys Ser Ser His Glu Lys Ser Asn Lys Ser Leu Glu 1185 1190 1195 1200

Asp Lys Ser Leu Glu Phe Lys Lys Leu Ser Glu Glu Leu Ala Ile Gln 1205 1210 1215

Leu Asp Ile Cys Cys Lys Lys Thr Glu Ala Leu Leu Glu Ala Lys Thr 1220 1225 1230

Asn Glu Leu Ile Asn Ile Ser Ser Ser Lys Thr Asn Ala Ile Leu Ser 1235 1240 1245

Arg Ile Ser His Cys Gln His Arg Thr Thr Lys Val Lys Glu Ala Leu 1250 1255 1260

Leu Ile Lys Thr Cys Thr Val Ser Glu Leu Glu Ala Gln Leu Arg Gln 1265 1270 1275 1280

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His Gln Leu Glu Glu Lys Glu Asn Gln Ile Lys Ser Met Lys Ala Asp 1300 1305 1310

Ile Glu Ser Leu Val Thr Glu Lys Glu Ala Leu Gln Lys Glu Gly Gly 1315 1320 1325

Asn Gln Gln Gln Ala Ala Ser Glu Lys Glu Ser Cys Ile Thr Gln Leu 1330 1335 1340

Lys Lys Glu Leu Ser Glu Asn Ile Asn Ala Val Thr Leu Met Lys Glu 1345 1350 1355 1360

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Glu Ala Ala Ile Ser Ser Leu Arg Lys Gln Tyr Asp Glu Glu Lys Cys 1395 1400 1405

Glu Leu Leu Asp Gln Val Gln Asp Leu Ser Phe Lys Val Asp Thr Leu 1410 1415 1420

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Gln Asn Thr Val Lys Glu Leu Gln Ile Gln Leu Glu Leu Lys Ser Lys 1460 1465 1470

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Asp Gln Gln Asn Lys Arg Phe Asp Cys Leu Lys Gly Glu Met Glu Asp 1490 1495 1500

Asp Lys Ser Lys Met Glu Lys Lys Glu Ser Asn Leu Glu Thr Glu Leu 1505 1510 1515 1520

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Lys Thr Ile Glu Ile Glu Ser Leu Asn Glu Val Leu Lys Asn Tyr Asn 1540 1545 1550

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Cys Val Gln Lys Thr Tyr Glu Glu Lys Ile Ser Val Leu Gln Arg Asn 1730 1735 1740

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Glu Thr Val Ser Ser His Phe Glu Met Arg Cys Gln Tyr Gln Glu Arg 1765 1770 1775

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Ser Leu Ile Val Ala Gln His Val Glu Lys Glu Gly Gly Lys Asn Asn. 1810 1815 1820

Ile Gln Ala Lys Gln Asn Leu Glu Asn Val Phe Asp Asp Val Gln Lys 1825 1830 1835 1840

Thr Leu Gln Glu Lys Glu Leu Thr Cys Gln Ile Leu Glu Gln Lys Ile 1845 1850 1855

Lys Glu Leu Asp Ser Cys Leu Val Arg Gln Lys Glu Val His Arg Val 1860 1865 1870

Glu Met Glu Glu Leu Thr Ser Lys Tyr Glu Lys Leu Gln Ala Leu Gln 1875 1880 1885

Gln Met Asp Gly Arg Asn Lys Pro Thr Glu Leu Leu Glu Glu Asn Thr 1890 1895 1900

Glu Glu Lys Ser Lys Ser His Leu Val Gln Pro Lys Leu Leu Ser Asn 1905 1910 1915 1920

Met Glu Ala Gln His Asn Asp Leu Glu Phe Lys Leu Ala Gly Ala Glu 1925 1930 1935

Arg Glu Lys Gln Lys Leu Gly Lys Glu Ile Val Arg Leu Gln Lys Asp 1940 1945 1950

Leu Arg Met Leu Arg Lys Glu His Gln Glu Leu Glu Ile Leu Lys 1955 1960 1965

Lys Glu Tyr Asp Gln Glu Arg Glu Glu Lys Ile Lys Gln Glu Gln Glu 1970 1975 1980

Asp Leu Glu Leu Lys His Asn Ser Thr Leu Lys Gln Leu Met Arg Glu 1985 1990 1995 2000

Phe Asn Thr Gln Leu Ala Gln Lys Glu Gln Glu Leu Glu Met Thr Ile
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Lys Glu Thr Ile Asn Lys Ala Glu Glu Val Glu Ala Glu Leu Leu Glu 2020 2025 2030

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Ala Gln Lys Thr Thr Leu Ile Ser Asp Ser Lys Leu Lys Glu Gln Glu 2115 2120 2125

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Gly Lys Tyr Ser Glu Leu Val Thr Ala Tyr Gln Met Leu Gln Arg Glu 180 185 190

Lys Lys Leu Gln Gly Ile Leu Ser Gln Ser Gln Asp Lys Ser Leu Arg Arg Ile Ala Glu Leu Arg Glu Glu Leu Gln Met Asp Gln Gln Ala 215 Lys Lys His Leu Gln Glu Glu Phe Asp Ala Ser Leu Glu Glu Lys Asp Gln Tyr Ile Ser Val Leu Gln Thr Gln Val Ser Leu Leu Lys Gln Arg 250 245 Leu Arg Asn Gly Pro Met Asn Val Asp Val Leu Lys Pro Leu Pro Gln Leu Glu Pro Gln Ala Glu Val Phe Thr Lys Glu Glu Asn Pro Glu Ser Asp Gly Glu Pro Val Val Glu Asp Gly Thr Ser Val Lys Thr Leu Glu 295 Thr Leu Gln Gln Arg Val Lys Arg Gln Glu Asn Leu Leu Lys Arg Cys 315 Lys Glu Thr Ile Gln Ser His Lys Glu Gln Cys Thr Leu Leu Thr Ser Glu Lys Glu Ala Leu Gln Glu Gln Leu Asp Glu Arg Leu Gln Glu Leu 345 Glu Lys Ile Lys Asp Leu His Met Ala Glu Lys Thr Lys Leu Ile Thr 360 Gln Leu Arg Asp Ala Lys Asn Leu Ile Glu Gln Leu Glu Gln Asp Lys 375 Gly Met Val Ile Ala Glu Thr Lys Arg Gln Met His Glu Thr Leu Glu 395 Met Lys Glu Glu Ile Ala Gln Leu Arg Ser Arg Ile Lys Gln Met 405 Thr Thr Gln Gly Glu Glu Leu Arg Glu Gln Lys Glu Lys Ser Glu Arg 425 Ala Ala Phe Glu Glu Leu Glu Lys Ala Leu Ser Thr Ala Gln Lys Thr Glu Glu Ala Arg Arg Lys Leu Lys Ala Glu Met Asp Glu Gln Ile Lys Thr Ile Glu Lys Thr Ser Glu Glu Glu Arg Ile Ser Leu Gln Glu Leu Ser Arg Val Lys Gln Glu Val Val Asp Val Met Lys Lys Ser Ser 490 Glu Glu Gln Ile Ala Lys Leu Gln Lys Leu His Glu Lys Glu Leu Ala 505 Arg Lys Glu Gln Glu Leu Thr Lys Lys Leu Gln Thr Arg Glu Arg Glu Phe Gln Glu Gln Met Lys Val Ala Leu Glu Lys Ser Gln Ser Glu Tyr 535 Leu Lys Ile Ser Gln Glu Lys Glu Gln Gln Glu Ser Leu Ala Leu Glu

560 550 555 545 Glu Leu Glu Leu Gln Lys Lys Ala Ile Leu Thr Glu Ser Glu Asn Lys 570 Leu Arg Asp Leu Gln Gln Glu Ala Glu Thr Tyr Arg Thr Arg Ile Leu Glu Leu Glu Ser Ser Leu Glu Lys Ser Leu Gln Glu Asn Lys Asn Gln Ser Lys Asp Leu Ala Val His Leu Glu Ala Glu Lys Asn Lys His Asn 615 Lys Glu Ile Thr Val Met Val Glu Lys His Lys Thr Glu Leu Glu Ser Leu Lys His Gln Gln Asp Ala Leu Trp Thr Glu Lys Leu Gln Val Leu Lys Gln Gln Tyr Gln Thr Glu Met Glu Lys Leu Arg Glu Lys Cys Glu Gln Glu Lys Glu Thr Leu Leu Lys Asp Lys Glu Ile Ile Phe Gln Ala His Ile Glu Glu Met Asn Glu Lys Thr Leu Glu Lys Leu Asp Val Lys 695 Gln Thr Glu Leu Glu Ser Leu Ser Ser Glu Leu Ser Glu Val Leu Lys 715 Ala Arg His Lys Leu Glu Glu Glu Leu Ser Val Leu Lys Asp Gln Thr Asp Lys Met Lys Gln Glu Leu Glu Ala Lys Met Asp Glu Gln Lys Asn His His Gln Gln Gln Val Asp Ser Ile Ile Lys Glu His Glu Val Ser Ile Gln Arg Thr Glu Lys Ala Leu Lys Asp Gln Ile Asn Gln Leu Glu Leu Leu Leu Lys Glu Arg Asp Lys His Leu Lys Glu His Gln Ala His Val Glu Asn Leu Glu Ala Asp Ile Lys Arg Ser Glu Gly Glu Leu Gln Gln Ala Ser Ala Lys Leu Asp Val Phe Gln Ser Tyr Gln Ser Ala Thr His Glu Gln Thr Lys Ala Tyr Glu Glu Gln Leu Ala Gln Leu Gln Gln 840 Lys Leu Leu Asp Leu Glu Thr Glu Arg Ile Leu Leu Thr Lys Gln Val Ala Glu Val Glu Ala Gln Lys Lys Asp Val Cys Thr Glu Leu Asp Ala His Lys Ile Gln Val Gln Asp Leu Met Gln Gln Leu Glu Lys Gln Asn 885 Ser Glu Met Glu Gln Lys Val Lys Ser Leu Thr Gln Val Tyr Glu Ser

Lys Leu Glu Asp Gly Asn Lys Glu Gln Glu Gln Thr Lys Gln Ile Leu 915 920 925

Val Glu Lys Glu Asn Met Ile Leu Gln Met Arg Glu Gly Gln Lys Lys 930 935 940

Glu Ile Glu Ile Leu Thr Gln Lys Leu Ser Ala Lys Glu Asp Ser Ile 945 950 955 960

His Ile Leu Asn Glu Glu Tyr Glu Thr Lys Phe Lys Asn Gln Glu Lys 965 970 975

Lys Met Glu Lys Val Lys Gln Lys Ala Lys Glu Met Gln Glu Thr Leu 980 985 990

Lys Lys Leu Leu Asp Gln Glu Ala Lys Leu Lys Lys Glu Leu Glu 995 1000 1005

Asn Thr Ala Leu Glu Leu Ser Gln Lys Glu Lys Gln Phe Asn Ala Lys 1010 1015 1020

Met Leu Glu Met Ala Gln Ala Asn Ser Ala Gly Ile Ser Asp Ala Val 1025 1030 1035 1040

Ser Arg Leu Glu Thr Asn Gln Lys Glu Gln Ile Glu Ser Leu Thr Glu 1045 1050 1055

Val His Arg Arg Glu Leu Asn Asp Val Ile Ser Ile Trp Glu Lys Lys 1060 1065 1070

Leu Asn Gln Gln Ala Glu Glu Leu Gln Glu Ile His Glu Ile Gln Leu 1075 1080 1085

Gln Glu Lys Glu Gln Glu Val Ala Glu Leu Lys Gln Lys Ile Leu Leu 1090 1095 1100

Phe Gly Cys Glu Lys Glu Glu Met Asn Lys Glu Ile Thr Trp Leu Lys 1105 1110 1115 1120

Glu Glu Gly Val Lys Gln Asp Thr Thr Leu Asn Glu Leu Gln Glu Gln 1125 1130 1135

Leu Lys Gln Lys Ser Ala His Val Asn Ser Leu Ala Gln Asp Glu Thr 1140 1145 1150

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Lys Thr Thr Asp Glu Glu Phe Gln Ser Leu Lys Ser Ser His Glu Lys 1205 1210 1215

Ser Asn Lys Ser Leu Glu Asp Lys Ser Leu Glu Phe Lys Lys Leu Ser 1220 1225 1230

Glu Glu Leu Ala Ile Gln Leu Asp Ile Cys Cys Lys Lys Thr Glu Ala 1235 1240 1245

Leu Leu Glu Ala Lys Thr Asn Glu Leu Ile Asn Ile Ser Ser Lys 1250 1255 1260 Thr Asn Ala Ile Leu Ser Arg Ile Ser His Cys Gln His Arg Thr Thr 1265 1270 1275 1280

Lys Val Lys Glu Ala Leu Leu Ile Lys Thr Cys Thr Val Ser Glu Leu 1285 1290 1295

Glu Ala Gln Leu Arg Gln Leu Thr Glu Glu Gln Asn Thr Leu Asn Ile 1300 1305 1310

Ser Phe Gln Gln Ala Thr His Gln Leu Glu Glu Lys Glu Asn Gln Ile 1315 1320 1325

Lys Ser Met Lys Ala Asp Ile Glu Ser Leu Val Thr Glu Lys Glu Ala 1330 1335 1340

Leu Gln Lys Glu Gly Gly Asn Gln Gln Gln Ala Ala Ser Glu Lys Glu 1345 1350 1355 1360

Ser Cys Ile Thr Gln Leu Lys Lys Glu Leu Ser Glu Asn Ile Asn Ala 1365 1370 1375

Val Thr Leu Met Lys Glu Glu Leu Lys Glu Lys Lys Val Glu Ile Ser 1380 1385 1390

Ser Leu Ser Lys Gln Leu Thr Asp Leu Asn Val Gln Leu Gln Asn Ser 1395 1400 1405

Ile Ser Leu Ser Glu Lys Glu Ala Ala Ile Ser Ser Leu Arg Lys Gln 1410 1415 1420

Tyr Asp Glu Glu Lys Cys Glu Leu Leu Asp Gln Val Gln Asp Leu Ser 1425 1430 1435 1440

Phe Lys Val Asp Thr Leu Ser Lys Glu Lys Ile Ser Ala Leu Glu Gln
1445 1450 1455

Val Asp Asp Trp Ser Asn Lys Phe Ser Glu Trp Lys Lys Lys Ala Gln 1460 1465 1470

Ser Arg Phe Thr Gln His Gln Asn Thr Val Lys Glu Leu Gln Ile Gln 1475 1480 1485

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Glu Asp His Ile Thr Gln Lys Thr Ile Glu Ile Glu Ser Leu Asn Glu 1555 1560 1565

Val Leu Lys Asn Tyr Asn Gln Gln Lys Asp Ile Glu His Lys Glu Leu 1570 1575 1580

Val Gln Lys Leu Gln His Phe Gln Glu Leu Gly Glu Glu Lys Asp Asn 1585 1590 1595 1600

Arg Val Lys Glu Ala Glu Glu Lys Ile Leu Thr Leu Glu Asn Gln Val 1605 1610 1615

Tyr Ser Met Lys Ala Glu Leu Glu Thr Lys Lys Lys Glu Leu Glu His

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Val Asn Leu Ser Val Lys Ser Lys Glu Glu Glu Leu Lys Ala Leu Glu 1635 1640 1645

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Lys Ala Glu Gln Lys Ile Ala Ala Ile Lys Lys Gln Leu Leu Ser Gln 1665 1670 1675 1680

Met Glu Glu Lys Glu Glu Gln Tyr Lys Lys Gly Thr Glu Ser His Leu 1685 1690 1695

Ser Glu Leu Asn Thr Lys Leu Gln Glu Arg Glu Arg Glu Val His Ile 1700 1705 1710

Leu Glu Glu Lys Leu Lys Ser Val Glu Ser Ser Gln Ser Glu Thr Leu 1715 1720 1725

Ile Val Pro Arg Ser Ala Lys Asn Val Ala Ala Tyr Thr Glu Gln Glu 1730 1735 1740

Glu Ala Asp Ser Gln Gly Cys Val Gln Lys Thr Tyr Glu Glu Lys Ile 1745 1750 1755 1760

Ser Val Leu Gln Arg Asn Leu Thr Glu Lys Glu Lys Leu Leu Gln Arg 1765 1770 1775

Val Gly Gln Glu Lys Glu Glu Thr Val Ser Ser His Phe Glu Met Arg 1780 1785 1790

Cys Gln Tyr Gln Glu Arg Leu Ile Lys Leu Glu His Ala Glu Ala Lys 1795 1800 1805

Gln His Glu Asp Gln Ser Met Ile Gly His Leu Gln Glu Glu Leu Glu 1810 1815 1820

Glu Lys Asn Lys Lys Tyr Ser Leu Ile Val Ala Gln His Val Glu Lys 1825 1830 1835 1840

Glu Gly Gly Lys Asn Asn Ile Gln Ala Lys Gln Asn Leu Glu Asn Val 1845 1850 1855

Phe Asp Asp Val Gln Lys Thr Leu Gln Glu Lys Glu Leu Thr Cys Gln 1860 1865 1870

Ile Leu Glu Gln Lys Ile Lys Glu Leu Asp Ser Cys Leu Val Arg Gln 1875 1880 1885

Lys Glu Val His Arg Val Glu Met Glu Glu Leu Thr Ser Lys Tyr Glu 1890 1895 1900

Lys Leu Gln Ala Leu Gln Gln Met Asp Gly Arg Asn Lys Pro Thr Glu 1905 1910 1915 1920

Leu Leu Glu Glu Asn Thr Glu Glu Lys Ser Lys Ser His Leu Val Gln 1925 1930 1935

Pro Lys Leu Leu Ser Asn Met Glu Ala Gln His Asn Asp Leu Glu Phe 1940 1945 1950

Lys Leu Ala Gly Ala Glu Arg Glu Lys Gln Lys Leu Gly Lys Glu Ile 1955 1960 1965

Val Arg Leu Gln Lys Asp Leu Arg Met Leu Arg Lys Glu His Gln Gln 1970 1975 1980 Glu Leu Glu Ile Leu Lys Lys Glu Tyr Asp Gln Glu Arg Glu Glu Lys 1985 1990 1995 2000

Ile Lys Gln Glu Glu Asp Leu Glu Leu Lys His Asn Ser Thr Leu 2005 2010 2015

Lys Gln Leu Met Arg Glu Phe Asn Thr Gln Leu Ala Gln Lys Glu Gln 2020 2025 2030

Glu Leu Glu Met Thr Ile Lys Glu Thr Ile Asn Lys Ala Gln Glu Val 2035 2040 2045

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Lys Leu Glu Glu Glu Asn Pro Gly Asn Asp Asn Val Thr Ile Met 2115 2120 2125

Glu Leu Gln Thr Gln Leu Ala Gln Lys Thr Thr Leu Ile Ser Asp Ser 2130 . 2135 2140

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Arg Leu Lys Lys Tyr Glu Lys Asn Val Tyr Ala Thr Thr Val Gly Thr 2165 2170 2175

Pro Tyr Lys Gly Gly Asn Leu Tyr His Thr Asp Val Ser Leu Phe Gly 2180 2185 2190

Glu Pro Thr Glu Phe Glu Tyr Leu Arg Lys Val Leu Phe Glu Tyr Met 2195 2200 2205

Met Gly Arg Glu Thr Lys Thr Met Ala Lys Val Ile Thr Thr Val Leu 2210 2220

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cccttcaggt ttcgttgaca ctcaggaccg tacgtacgct gcgccatgtt caagaaactg 300 aagcaaaaga tcagcgagga gcagcagcag ctccagcagg cgctggctcc tgctcaggcg 360 tcctccaatt cttcaacacc aacaagaatg aggagcagga catcttcatt tacagagcaa 420 cttgatgaag gtacacccaa tagagagaat gcatctactc atgcctcgaa atctcctgac 480 agtgttaatg gaagtgaacc aagcatteet eagteaggtg acacaeagte ttttgcaeag 540 aagctccagc tccgggtgcc ctccgtggag tctttgtttc gaagtccgat aaaggaatct 600 ctattccggt cttcttctaa agagtctttg gtacgaacat cttccagaga atccctgaat 660 cgacttgacc tggacagttc tactgccagt tttgatccac cctctgatat ggatagcgag 720 gctgaagact tggtagggaa ttcagacagt ctcaacaaag aacagttgat tcagcggttg 780 cgaagaatgg aacgaagctt aagtagctac aggggaaaat attctgagct tgttacagct 840 tatcagatgo ttcagagaga gaagaaaaag ctacaaggta tattaagtca gagtcaggat 900 aaatcactto ggagaatago agaattaaga gaggagotoo aaatggacca gcaggcaaag 960 aaacatctgc aagaggagtt tgatgcatct ttagaggaga aagatcagta tatcagtgtt 1020 ctccaaactc aggtttctct actgaaacaa cgattacgaa atggcccgat gaatgttgat 1080 gtactgaaac cacttcctca gctggaacca caggctgaag tcttcactaa agaagagaat 1140 ccagaaagtg atggagagcc agtagtggaa gatggaactt ctgtaaaaac actggaaaca 1200 ctccagcaaa gagtgaagcg tcaagagaac ctacttaagc gttgtaagga aacaattcag 1260 tcacataagg aacaatgtac actattaact agtgaaaaag aagctctgca agaacaactg 1320 gatgaaagac ttcaagaact agaaaagata aaggaccttc atatggccga gaagactaaa 1380 cttatcactc agttgcgtga tgcaaagaac ttaattgaac agcttgaaca agataaggga 1440 atggtaatcg cagagacaaa acgtcagatg catgaaaccc tggaaatgaa agaagaagaa 1500 attgctcaac tccgtagtcg catcaaacag atgactaccc agggagagga attacgggaa 1560 cagaaagaaa agtccgaaag agctgctttt gaggaacttg aaaaagcttt gagtacagcc 1620 caaaaaacag aggaagcacg gagaaaactg aaggcagaaa tggatgaaca aataaaaact 1680 atcgaaaaaa caagtgagga ggaacgcatc agtcttcaac aggaattaag tcgggtgaaa 1740 caggaggttg ttgatgtaat gaaaaaatcc tcagaagaac aaattgctaa gctacagaag 1800 cttcatgaaa aggagctggc cagaaaagag caggaactga ccaagaagct tcagacccga 1860 gaaagggaat ttcaggaaca aatgaaagta gctcttgaaa agagtcaatc agaatatttg 1920 aagatcagcc aagaaaaaga acagcaagaa tctttggccc tagaagagtt agagttgcag 1980 aaaaaagcaa teeteacaga aagtgaaaat aaaetteggg aeetteagea agaagcagag 2040 acttacagaa ctagaattct tgaattggaa agttctttgg aaaaaagctt acaagaaaac 2100 aaaaatcagt caaaagattt ggctgttcat ctggaagctg aaaaaaataa gcacaataag 2160 gagattacag tcatqqttga aaaacacaag acagaattgg aaagccttaa gcatcagcag 2220 gatgcccttt ggactgaaaa actccaagtc ttaaagcaac aatatcagac tgaaatggaa 2280 aaacttaggg aaaagtgtga acaagaaaaa gaaacattgt tgaaagacaa agagattatc 2340 ttccaggccc acatagaaga aatgaatgaa aagactttag aaaagcttga tgtgaagcaa 2400 acagaactag aatcattatc ttctgaactg tcagaagtat taaaagcccg tcacaaacta 2460 gaagaggaac tttctgttct gaaagatcaa acagataaaa tgaagcagga attagaggcc 2520 aagatggatg aacagaaaaa tcatcaccag cagcaagttg acagtatcat taaagaacac 2580 gaggtateta tecagaggae tgagaaggea ttaaaagate aaattaatea aettgagett 2640 ctcttgaagg aaagggacaa gcatttgaaa gagcatcagg ctcatgtaga aaatttagag 2700 gcagatatta aaaggtctga aggggaactc cagcaggcat ctgctaagct ggacgttttt 2760 cagtettace agagtgeeac acatgageag acaaaageat atgaggaaca gttggeecaa 2820 ttgcagcaga agttgttgga tttggaaaca gaaagaattc ttcttaccaa acaggttgct 2880 gaagttgaag cacaaaagaa agatgtttgt actgagttag atgctcacaa aatccaggtg 2940 caggacttaa tgcagcaact tgaaaaacaa aatagtgaaa tggagcaaaa agtaaaatct 3000 ttaacccaag tctatgagtc caaacttgaa gatggtaaca aagaacagga acagacaaag 3060 caaatcttgg tggaaaagga aaatatgatt ttacaaatga gagaaggaca gaagaaagaa 3120 attgagatac tcacacagaa attgtcagcc aaggaggaca gtattcatat tttgaatgag 3180 gaatatgaaa ccaaatttaa aaaccaagaa aaaaagatgg aaaaagttaa gcagaaagca 3240 aaggagatgc aagaaacgtt aaagaaaaaa ttactggatc aggaagccaa acttaagaaa 3300 gagcttgaaa atactgctct agagcttagt cagaaagaaa aacagtttaa tgccaaaatg 3360 ctggaaatgg cacaggctaa ctcagctgga atcagtgatg cagtgtcaag actggaaaca 3420 aaccaaaaag aacaaataga aagtettaet gaggtteate gaegagaaet caatgatgte 3480 atatcaatct gggaaaagaa acttaatcag caagctgaag aacttcagga aatacatgaa 3540 atccaattac aggaaaaaga acaagaggta gcagaactga aacaaaagat cctcctattt 3600 gggtgtgaaa aagaagagat gaacaaggaa ataacatggc tgaaggaaga aggtgttaag 3660 caggatacaa cattaaatga attacaggaa cagttaaagc agaagtctgc ccatgtgaat 3720 tctcttgcac aagatgaaac taaactgaaa gctcatcttg aaaagctaga ggttgacttg 3780 aataagtctc tgaaggaaaa tacttttctt caagagcagc tagttgaact gaagatgctg 3840 gcagaagaag ataagcggaa ggtttctgag ttgactagca agttgaaaac cacagatgaa 3900. gaattccaga gtttgaaatc ttcacatgaa aaaagtaaca aaagcctaga ggacaagagc 3960 ttggaattta aaaaactgtc tgaggaacta gcgattcagc tagatatttg ctgtaagaaa 4020 accgaageet tattagaage taaaacaaat gagetaatea acattagtag tagtaaaaet 4080 aatgccattc tttctaggat ttctcattgt cagcaccgta caactaaagt taaggaggca 4140 ctgttaatta aaacttgcac agtttctgaa ttagaagcac aacttagaca gttgacagag 4200 gagcaaaata cactaaatat ticttttcaa caggctactc atcagttaga agaaaaagaa 4260

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<212> PRT

<213> Homo sapiens

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355 360 Gln Leu Arg Asp Ala Lys Asn Leu Ile Glu Gln Leu Glu Gln Asp Lys 375 Gly Met Val Ile Ala Glu Thr Lys Arg Gln Met His Glu Thr Leu Glu Met Lys Glu Glu Glu Ile Ala Gln Leu Arg Ser Arg Ile Lys Gln Met Thr Thr Gln Gly Glu Glu Leu Arg Glu Gln Lys Glu Lys Ser Glu Arg 425 Ala Ala Phe Glu Glu Leu Glu Lys Ala Leu Ser Thr Ala Gln Lys Thr Glu Glu Ala Arg Arg Lys Leu Lys Ala Glu Met Asp Glu Gln Ile Lys Thr Ile Glu Lys Thr Ser Glu Glu Glu Arg Ile Ser Leu Gln Glu Leu Ser Arg Val Lys Gln Glu Val Val Asp Val Met Lys Lys Ser Ser Glu Glu Gln Ile Ala Lys Leu Gln Lys Leu His Glu Lys Glu Leu Ala Arg Lys Glu Gln Glu Leu Thr Lys Lys Leu Gln Thr Arg Glu Arg Glu Phe Gln Glu Gln Met Lys Val Ala Leu Glu Lys Ser Gln Ser Glu Tyr Leu Lys Ile Ser Gln Glu Lys Glu Gln Gln Glu Ser Leu Ala Leu Glu 545 Glu Leu Glu Leu Gln Lys Lys Ala Ile Leu Thr Glu Ser Glu Asn Lys 570 Leu Arg Asp Leu Gln Gln Glu Ala Glu Thr Tyr Arg Thr Arg Ile Leu Glu Leu Glu Ser Ser Leu Glu Lys Ser Leu Gln Glu Asn Lys Asn Gln Ser Lys Asp Leu Ala Val His Leu Glu Ala Glu Lys Asn Lys His Asn 615 Lys Glu Ile Thr Val Met Val Glu Lys His Lys Thr Glu Leu Glu Ser 635 Leu Lys His Gln Gln Asp Ala Leu Trp Thr Glu Lys Leu Gln Val Leu Lys Gln Gln Tyr Gln Thr Glu Met Glu Lys Leu Arg Glu Lys Cys Glu Gln Glu Lys Glu Thr Leu Leu Lys Asp Lys Glu Ile Ile Phe Gln Ala 680 His Ile Glu Glu Met Asn Glu Lys Thr Leu Glu Lys Leu Asp Val Lys 695 Gln Thr Glu Leu Glu Ser Leu Ser Ser Glu Leu Ser Glu Val Leu Lys 715

Ala Arg His Lys Leu Glu Glu Glu Leu Ser Val Leu Lys Asp Gln Thr Asp Lys Met Lys Gln Glu Leu Glu Ala Lys Met Asp Glu Gln Lys Asn His His Gln Gln Gln Val Asp Ser Ile Ile Lys Glu His Glu Val Ser 760 Ile Gln Arg Thr Glu Lys Ala Leu Lys Asp Gln Ile Asn Gln Leu Glu Leu Leu Leu Lys Glu Arg Asp Lys His Leu Lys Glu His Gln Ala His Val Glu Asn Leu Glu Ala Asp Ile Lys Arg Ser Glu Gly Glu Leu Gln 805 Gln Ala Ser Ala Lys Leu Asp Val Phe Gln Ser Tyr Gln Ser Ala Thr His Glu Gln Thr Lys Ala Tyr Glu Glu Gln Leu Ala Gln Leu Gln Gln 835 Lys Leu Leu Asp Leu Glu Thr Glu Arg Ile Leu Leu Thr Lys Gln Val 855 Ala Glu Val Glu Ala Gln Lys Lys Asp Val Cys Thr Glu Leu Asp Ala His Lys Ile Gln Val Gln Asp Leu Met Gln Gln Leu Glu Lys Gln Asn Ser Glu Met Glu Gln Lys Val Lys Ser Leu Thr Gln Val Tyr Glu Ser 905 Lys Leu Glu Asp Gly Asn Lys Glu Gln Glu Gln Thr Lys Gln Ile Leu Val Glu Lys Glu Asn Met Ile Leu Gln Met Arg Glu Gly Gln Lys Lys 935 Glu Ile Glu Ile Leu Thr Gln Lys Leu Ser Ala Lys Glu Asp Ser Ile 955 950 His Ile Leu Asn Glu Glu Tyr Glu Thr Lys Phe Lys Asn Gln Glu Lys Lys Met Glu Lys Val Lys Gln Lys Ala Lys Glu Met Gln Glu Thr Leu Lys Lys Lys Leu Leu Asp Gln Glu Ala Lys Leu Lys Lys Glu Leu Glu 995 Asn Thr Ala Leu Glu Leu Ser Gln Lys Glu Lys Gln Phe Asn Ala Lys Met Leu Glu Met Ala Gln Ala Asn Ser Ala Gly Ile Ser Asp Ala Val 1025 1030 1035 Ser Arg Leu Glu Thr Asn Gln Lys Glu Gln Ile Glu Ser Leu Thr Glu 1045 1050 Val His Arg Arg Glu Leu Asn Asp Val Ile Ser Ile Trp Glu Lys Lys

1065

1060

Leu Asn Gln Gln Ala Glu Glu Leu Gln Glu Ile His Glu Ile Gln Leu 1075 1080 1085

Gln Glu Lys Glu Gln Glu Val Ala Glu Leu Lys Gln Lys Ile Leu Leu 1090 1095 1100

Phe Gly Cys Glu Lys Glu Glu Met Asn Lys Glu Ile Thr Trp Leu Lys 1105 1110 1115 1120

Glu Glu Gly Val Lys Gln Asp Thr Thr Leu Asn Glu Leu Gln Glu Gln 1125 1130 1135

Leu Lys Gln Lys Ser Ala His Val Asn Ser Leu Ala Gln Asp Glu Thr 1140 1145 1150

Lys Leu Lys Ala His Leu Glu Lys Leu Glu Val Asp Leu Asn Lys Ser 1155 1160 1165

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Leu Ala Glu Glu Asp Lys Arg Lys Val Ser Glu Leu Thr Ser Lys Leu 1185 1190 1195 1200

Lys Thr Thr Asp Glu Glu Phe Gln Ser Leu Lys Ser Ser His Glu Lys 1205 1210 1215

Ser Asn Lys Ser Leu Glu Asp Lys Ser Leu Glu Phe Lys Lys Leu Ser 1220 1225 1230

Glu Glu Leu Ala Ile Gln Leu Asp Ile Cys Cys Lys Lys Thr Glu Ala 1235 1240 1245

Leu Leu Glu Ala Lys Thr Asn Glu Leu Ile Asn Ile Ser Ser Lys 1250 1255 1260

Thr Asn Ala Ile Leu Ser Arg Ile Ser His Cys Gln His Arg Thr Thr 1265 1270 1275 1280

Lys Val Lys Glu Ala Leu Leu Ile Lys Thr Cys Thr Val Ser Glu Leu 1285 1290 1295

Glu Ala Gln Leu Arg Gln Leu Thr Glu Glu Gln Asn Thr Leu Asn Ile 1300 1305 1310

Ser Phe Gln Gln Ala Thr His Gln Leu Glu Glu Lys Glu Asn Gln Ile 1315 1320 1325

Lys Ser Met Lys Ala Asp Ile Glu Ser Leu Val Thr Glu Lys Glu Ala 1330 1335 1340

Leu Gln Lys Glu Gly Gly Asn Gln Gln Gln Ala Ala Ser Glu Lys Glu 1345 1350 1355 1360

Ser Cys Ile Thr Gln Leu Lys Lys Glu Leu Ser Glu Asn Ile Asn Ala 1365 1370 1375

Val Thr Leu Met Lys Glu Glu Leu Lys Glu Lys Lys Val Glu Ile Ser 1380 1385 1390

Ser Leu Ser Lys Gln Leu Thr Asp Leu Asn Val Gln Leu Gln Asn Ser 1395 1400 1405

Ile Ser Leu Ser Glu Lys Glu Ala Ala Ile Ser Ser Leu Arg Lys Gln 1410 1420

Tyr Asp Glu Glu Lys Cys Glu Leu Leu Asp Gln Val Gln Asp Leu Ser

1425 1430 1435 1440

Phe Lys Val Asp Thr Leu Ser Lys Glu Lys Ile Ser Ala Leu Glu Gln 1445 1450 1455

Val Asp Asp Trp Ser Asn Lys Phe Ser Glu Trp Lys Lys Lys Ala Gln 1460 1465 1470

Ser Arg Phe Thr Gln His Gln Asn Thr Val Lys Glu Leu Gln Ile Gln 1475 1480 1485

Leu Glu Leu Lys Ser Lys Glu Ala Tyr Glu Lys Asp Glu Gln Ile Asn 1490 1495 1500

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Asn Leu Glu Thr Glu Leu Lys Ser Gln Thr Ala Arg Ile Met Glu Leu 1540 1545 1550

Glu Asp His Ile Thr Gln Lys Thr Ile Glu Ile Glu Ser Leu Asn Glu 1555 1560 1565

Val Leu Lys Asn Tyr Asn Gln Gln Lys Asp Ile Glu His Lys Glu Leu 1570 1575 1580

Val Gln Lys Leu Gln His Phe Gln Glu Leu Gly Glu Glu Lys Asp Asn 1585 1590 1595 1600

Arg Val Lys Glu Ala Glu Glu Lys Ile Leu Thr Leu Glu Asn Gln Val 1605 1610 1615

Tyr Ser Met Lys Ala Glu Leu Glu Thr Lys Lys Lys Glu Leu Glu His 1620 1625 1630

Val Asn Leu Ser Val Lys Ser Lys Glu Glu Glu Leu Lys Ala Leu Glu 1635 1640 1645

Asp Arg Leu Glu Ser Glu Ser Ala Ala Lys Leu Ala Glu Leu Lys Arg 1650 1660

Lys Ala Glu Gln Lys Ile Ala Ala Ile Lys Lys Gln Leu Leu Ser Gln 1665 1670 1675 1680

Met Glu Glu Lys Glu Glu Gln Tyr Lys Lys Gly Thr Glu Ser His Leu 1685 1690 1695

Ser Glu Leu Asn Thr Lys Leu Gln Glu Arg Glu Arg Glu Val His Ile 1700 1705 1710

Leu Glu Glu Lys Leu Lys Ser Val Glu Ser Ser Gln Ser Glu Thr Leu 1715 1720 1725

Ile Val Pro Arg Ser Ala Lys Asn Val Ala Ala Tyr Thr Glu Glu 1730 1735 1740

Glu Ala Asp Ser Gln Gly Cys Val Gln Lys Thr Tyr Glu Glu Lys Ile 1745 1750 1755 1760

Ser Val Leu Gln Arg Asn Leu Thr Glu Lys Glu Lys Leu Leu Gln Arg 1765 1770 1775

Val Gly Gln Glu Lys Glu Glu Thr Val Ser Ser His Phe Glu Met Arg 1780 1785 1790 Cys Gln Tyr Gln Glu Arg Leu Ile Lys Leu Glu His Ala Glu Ala Lys 1795 1800 1805

Gln His Glu Asp Gln Ser Met Ile Gly His Leu Gln Glu Glu Leu Glu 1810 1815 1820

Glu Lys Asn Lys Lys Tyr Ser Leu Ile Val Ala Gln His Val Glu Lys 1825 1830 1835 1840

Glu Gly Gly Lys Asn Asn Ile Gln Ala Lys Gln Asn Leu Glu Asn Val 1845 1850 1855

Phe Asp Asp Val Gln Lys Thr Leu Gln Glu Lys Glu Leu Thr Cys Gln 1860 1865 1870

Ile Leu Glu Gln Lys Ile Lys Glu Leu Asp Ser Cys Leu Val Arg Gln 1875 1880 · 1885

Lys Glu Val His Arg Val Glu Met Glu Glu Leu Thr Ser Lys Tyr Glu 1890 1895 1900

Lys Leu Gln Ala Leu Gln Gln Met Asp Gly Arg Asn Lys Pro Thr Glu 1905 1910 1915 1920

Leu Leu Glu Glu Asn Thr Glu Glu Lys Ser Lys Ser His Leu Val Gln 1925 1930 1935

Pro Lys Leu Ser Asn Met Glu Ala Gln His Asn Asp Leu Glu Phe 1940 1945 1950

Lys Leu Ala Gly Ala Glu Arg Glu Lys Gln Lys Leu Gly Lys Glu Ile 1955 1960 1965

Val Arg Leu Gln Lys Asp Leu Arg Met Leu Arg Lys Glu His Gln Gln 1970 1975 1980

Glu Leu Glu Ile Leu Lys Lys Glu Tyr Asp Gln Glu Arg Glu Glu Lys 1985 1990 1995 2000

Ile Lys Gln Glu Gln Glu Asp Leu Glu Leu Lys His Asn Ser Thr Leu 2005 2010 2015

Lys Gln Leu Met Arg Glu Phe Asn Thr Gln Leu Ala Gln Lys Glu Gln 2020 2025 2030

Glu Leu Glu Met Thr Ile Lys Glu Thr Ile Asn Lys Ala Gln Glu Val 2035 2040 2045

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Lys Lys Ile Ala Glu Lys Asp Asp Asp Leu Lys Arg Thr Ala Lys Arg 2065 2070 2075 2080

Tyr Glu Glu Ile Leu Asp Ala Arg Glu Glu Glu Met Thr Ala Lys Val 2085 2090 2095

Arg Asp Leu Gln Thr Gln Leu Glu Glu Leu Gln Lys Lys Tyr Gln Gln 2100 2105 2110

Lys Leu Glu Glu Glu Asn Pro Gly Asn Asp Asn Val Thr Ile Met 2115 2120 2125

Glu Leu Gln Thr Gln Leu Ala Gln Lys Thr Thr Leu Ile Ser Asp Ser 2130 2135 2140 Lys Leu Lys Glu Gln Glu Phe Arg Glu Gln Ile His Asn Leu Glu Asp 2145 2150 2155 2160

Arg Leu Lys Lys Tyr Glu Lys Asn Val Tyr Ala Thr Thr Val Gly Thr 2165 2170 2175

Pro Tyr Lys Gly Gly Asn Leu Tyr His Thr Asp Val Ser Leu Phe Gly 2180 2185 2190

Glu Pro Thr Glu Phe Glu Tyr Leu Arg Lys Val Leu Phe Glu Tyr Met 2195 2200 2205

Met Gly Arg Glu Thr Lys Thr Met Ala Lys Val Ile Thr Thr Val Leu 2210 2215 2220

Lys Phe Pro Asp Asp Gln Thr Gln Lys Ile Leu Glu Arg Glu Asp Ala 2225 2230 2235 2240

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<212> DNA

<213> Artificial Sequence

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